

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **2001-310566**
(43)Date of publication of application : **06.11.2001**

(51)Int.CI.

B41N 1/14
G03F 7/00
G03F 7/004
G03F 7/033

(21)Application number : **2000-127761**

(71)Applicant : **MITSUI CHEMICALS INC**

(22)Date of filing : **27.04.2000**

(72)Inventor : **MATSUMOTO TAKATSURU**
MASE HIROSHI
HIROSE SUMIO
SUZUKI YUKO
SANADA TAKAYUKI

(54) THERMALLY SENSITIVE DIRECT TYPE LITHOGRAPHIC ORIGINAL PRINTING PLATE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a lithographic original printing plate obtainable in an inexpensive price which dissolves the problems inherent to the ordinary direct type offset printing materials, having the characteristics of a high anti-wearing plate with a high dimensional accuracy in a planographic printing.

SOLUTION: Letter-setting portions are transformed into being hydrophobic by a reaction of the functional group of a three-dimensionally cross 1 inked hydrophobic binding polymer with a particularly blocked isocyanate dispersed in size of less than 0.3 μm in the hydrophobic binding polymer. In this way, a lithographic original printing plate can be provided in a simple way and an inexpensive price, having the characteristics of a high anit-wearing plate with high dimensional accuracy, further, enabling one to avoid any generation of waste-disposals since no developing process is involved during the plate- making process.

LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's

decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2000 Japan Patent Office

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] Are the lithography original edition which consists of hydrophilic binder polymer, and three-dimensions bridge formation of this hydrophilic binder polymer is carried out. (1) protective group Aromatic secondary amine [the functional group in hydrophilic binder polymer] It is the heterocyclic compound or oximes which has the 3rd class alcohols, amides, phenols, lactams, and active hydrogen. (2) Dissociation temperature is 100-200 degrees C, and it is 0. in hydrophilic (3) this binder resin. The sensible-heat direct lithography original edition characterized by the printing section carrying out hydrophobing by reacting with the blocking isocyanate distributed in the size of 3 micrometers or less.

[Translation done.]

* NOTICES *

Japan Patent Office is not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[Industrial Application] this invention relates to the sensible-heat direct lithography original edition which was excellent in development needlessness at ****-proof.

[Description of the Prior Art] Along with the spread of computers, the platemaking method of various lithography is proposed with plate composition. From a practical use side, the block copy to a positive or a negative film is created. Although the method which can be burn on the lithography original edition is generally performed, the so-called computer two plate (CPT) type of lithography material which prints and engraves by laser or the thermal head to a direct plate has come to appear, without visible-image-izing printing image information edited and created by the electrophotography version directly engraved from the block copy through this film, silver salt phototype or an electronic typesetting, and DTP. Although these are not put in practical use yet, especially the CPT type is expected very much in fields, such as newspaper manufacture which CPT-ization completed from the bird clapper as rationalization and shortening of a platemaking process, and cost-of-materials reduction are possible. As this CPT plate, the plate engraved with photosensitivity, sensible-heat nature, or electrical energy is known. By Ar laser, semiconductor laser, etc., the plate of a photosensitive type applies material, such as an organic semiconductor, a silver salt + photopolymer system, and a high sensitivity photopolymer, printing by optical irradiation is performed, and is developed succeeding and engraved. However, the manufacturing installation of these plates is large-sized and expensive, and its version price is also comparatively high-priced compared with the conventional PS plate. Therefore, these plates and the platemaking process have not resulted in utilization. Furthermore, these also have the problem of abandonment processing of a developer. In addition, although there is silver salt phototype for implant printing, since ****-proof is low, it is used only for implant printing. Moreover, although the plates (Europe public presentation official report No. 200,488 etc.) engraved with electrical energy were known, platemaking equipment became large-scale, and these had some which lack in versatility in order to engrave by the printing version tossing in inside. The sensible-heat nature type plate is partly developed by implant printing uses including in-house printing. the plate which the thermofusion resin and thermoplastics which the sensible-heat layer was made to distribute are fused [plate] by heat printing to JP,63-64747,A and JP,1-113290,A, and changes a heating unit from a hydrophilic property to lipophilic property -- the U.S. patent official report 4,034,183 -- said -- the plate which carries out laser radiation of the hydrophilic polymer prepared on the base material to 4,063,949, loses a hydrophilic radical, and is converted into lipophilic property is indicated respectively Moreover, the thermofusion matter which it *****ed is applied to a base material, after *****ing the type (JP,3-108588,A) in which a heating unit is changed to lipophilic property, and the thermofusion matter, it applies with silicon resin, and the type (JP,5-8575,A) which a heating unit is changed to lipophilic property and prints it without dampening water is known. However, no thermofusion matter which it *****ed has reactivity. A plate called the types (JP,3-53991,A etc.) which use a block isocyanate as a lipophilic property component with active hydrogen content binder polymer on the base material which has a hydrophilic front face, punch after printing the type (JP,62-164596,A, 62-

164049 official report) and the upper thermofusion layer which carry out washing removal of the non-printing portion, and expose a lower layer hydrophilic layer (or lipophilic layer), and its platemaking method are also well-known. Type which heats an oily matter on a base material and is imprinted on a hydrophilic front face on the other hand s (the U.S. patent official report 3,964,389, JP,1-209135,A, 3-53991 official report, etc.) In addition, the charge of a plate which a sulfonic group is introduced into the sheet of a polyolefine, it prints by the thermal head, and the surface concentration of a sulfonic group is reduced, and forms the picture section is also well-known (U.S. patent official report 4,965,322). Furthermore, although the straight-writing type lithography material which forms the picture section in the front face of a hydrophilic layer with external meances, such as ink jet and a toner imprint, is in one of the direct type lithography material, the thermofusion nature matter of non-reactivity which *****ed in this is applied, and the straight-writing type plate which prepares a toner acceptance layer by heating printing is also known (JP,62-1587,A). It does not become the printing version only after fixing the toner of lipophilic property etc. in the formed toner acceptance layer, and the picture section is not formed after printing. Each plate for the sensible-heat nature lithography of these former was deficient in print durability, or since it was lacking in lipophilic property, the use had limitation and many were what requires wet development in the platemaking process.

[Problem(s) to be Solved by the Invention] the technology preceded as above -- the point and commercial level of cost of a version performance, platemaking equipment, platemaking workability or a plate, or platemaking and equipment -- operationally -- being alike -- there was a problem Then, this invention aims at solving the above-mentioned trouble of the conventional direct type offset plate. That is, the purpose of this invention is supplying the lithography original edition from which ****-proof [quantity] and the lithography version of a high dimensional accuracy are obtained by the low price. Still more nearly another purpose is offering the lithography original edition which can engrave even if there is no required development process of waste treatment, such as a developer, and it does not use the large-scale and expensive platemaking equipment of exclusive use in a platemaking process.

[Means for Solving the Problem] This invention persons inquired wholeheartedly, in order to solve the above-mentioned problem, and they completed this invention. Namely, this invention is the lithography original edition which consists of hydrophilic binder polymer. Three-dimensions bridge formation of this hydrophilic binder polymer is carried out. the functional group in hydrophilic binder polymer (1) A protective group Aromatic secondary amine, the 3rd class alcohols, and amides They are phenols, lactams, the heterocyclic compounds that have active hydrogen, or oximes. (2) The sensible-heat direct lithography original edition characterized by the printing section carrying out hydrophobing by reacting with the blocking isocyanate which dissociation temperature is 100-200 degrees C, and was distributed in the size of 0.3 micrometers or less in hydrophilic (3) this binder resin. It comes out.

[Embodiments of the Invention] Hereafter, this invention is explained. In the sensible-heat direct lithography original edition of this invention, although hydrophilic binder polymer constitutes the **** non-picture section for ink, it needs to have the three-dimensions structure of cross linkage. By considering as the three-dimensions structure of cross linkage, without the hydrophilic layer constituted as a principal component swelling this hydrophilic binder polymer with dampening water, a bond strength with a base material and the mechanical physical properties of a hydrophilic layer are maintained, and high ****-proof is shown. The three-dimensions structure of cross linkage is formed before platemaking, or may be formed after simultaneous with printing, or printing. It is desirable to damage at the time of handling and to have finished forming the three-dimensions structure of cross linkage before platemaking from prevention etc. Hydrophilic binder polymer can use before platemaking what has not taken the three-dimensions structure of cross linkage as a lithography material. With the hydrophilic binder polymer which has the three-dimensions structure of cross linkage as used in the field of this invention To the polymer which consisted of carbon-carbon to carbon bonds, as a side chain A carboxyl group, The amino group, a phosphoric-acid machine, sulfonic acid groups or these salts, a hydroxyl group, Hydrophilic functional groups, such as an amide group and a polyoxyethylene machine, one or more kinds and the mesh-sized polymer to contain [two or more], Any of a carbon atom and carbon-carbon to carbon bond they are at least Or the oxygen more than a kind, To

the polymer connected by nitrogen, sulfur, and the hetero atom that consists of Lynn, or its side chain, a carboxyl group, The amino group, a phosphoric-acid machine, sulfonic acid groups or these salts, a hydroxyl group, They are one or more kinds and the mesh-sized polymer to contain [two or more] about hydrophilic functional groups, such as an amide group and a polyoxyethylene machine. specifically A poly (meta) acrylate system, a polyoxyalkylene series, a polyurethane system, Polymer, such as an epoxy ring breakage addition polymerization system, the poly (meta) acrylic-acid system, the poly (meta) acrylamide system, a polyester system, a polyamide system, a polyamine system, a polyvinyl system, a polysaccharide system, or its multicomputer system, can be illustrated. Especially what repeats and has a hydroxyl group, a carboxyl group or its alkali-metal salt, the amino group or its hydrogen-halide salt, a sulfonic group or its amine, an alkali-metal salt, an alkaline-earth-metal salt, and the thing that combined these for any of an amide group they are in the side chain of a segment and the thing which piles up and has a polyoxyethylene machine further in a part of these hydrophilic functional groups and principal chain segments have a highly desirable hydrophilic property. Since not only a hydrophilic property but the ****-proof of the non-picture section improves, what has a urethane bond or urea combination in the principal chain or side chain of hydrophilic binder polymer in addition to these is still more desirable. The hydrophilic property of the hydrophilic binder polymer of this invention performs the printing examination which indicates in the example the hydrophilic binder polymer which constructed the bridge on the base material, and evaluates it by the existence of ink adhesion in a print sheet, or the reflection density difference (it measures with the Dainippon Screen Mfg. Co., Ltd. make and the reflection density plan DM 400) of the form of the non-picture section before and behind printing. In this case, it observes with the naked eye, and if ink dirt does not have private seals, and it accepts, good and the case where suppose that it is improper or the difference of the form reflection density of the non-picture section after printing and the form reflection density before printing exceeds good and 0.02 or less for 0.02 will be made improper. The hydrophilic binder polymer of this invention may contain the component of various others mentioned later if needed. The example of hydrophilic binder polymer in which three-dimensions bridge formation of this invention was carried out is illustrated below. An acrylic acid or its alkali, an amine salt, an itaconic acid, or its alkali, (Meta) An amine salt, 2-hydroxyethyl (meta) acrylate, an acrylamide (meta), N-MONOMECHI roll (meta) acrylamide, N-dimethylol (meta) acrylamide, 3-vinyl propionic acid or its alkali, an amine salt, a vinyl sulfonic acid, or its alkali, An amine salt, 2-sulfoethyl (meta) acrylate, polyoxy-ethylene-glycol monochrome (meta) acrylate, A 2-acrylamide-isobutane sulfonic acid, acid phosphooxy polyoxy ethylene glycol mono(metha)acrylate, Hydroxyl groups, such as an allylamine or its halide-acid salt, a carboxyl group, or its salt, A hydrophilic gay or a copolymer is compounded using a kind at least out of the hydrophilic monomer which has hydrophilic radicals, such as a sulfonic group or its salt, a phosphoric acid or its salt, an amide group, an amino group, and an ether machine. These functional groups are used for the hydrophilic binder polymer which has functional groups, such as a hydroxyl group in hydrophilic polymer, a carboxyl group, an amino group or its salt, and an epoxy group, and it obtains the unsaturation machine content polymer which introduced ring formation machines, such as ethylene addition polymerization nature unsaturation machines, such as a vinyl group, an allyl group, and an acrylic (meta) machine, or a cinnamoyl machine, a thinner millimeter DIN machine, a cyano thinner millimeter DIN machine, and p-phenylene diacrylate machine. As occasion demands, this unsaturation machine, the single organic functions and polyfunctional monomer which may be copolymerized, and a conventionally well-known polymerization initiator are added, it dissolves in a suitable solvent, and a dope is adjusted to this. This is coated on a base material and three-dimensions bridge formation is carried out to serve both as dryness after dryness. Moreover, a urea formalin resin, melamine formalin, dicyandiamide formalin, an alkoxy methyl group imino group content melamine, etc. can be illustrated. Especially, an alkoxy methyl group imino group content melamine (Mitsui SAITEKKU can be illustrated as a manufacture maker) is desirable. It is desirable that it is 5 - 45 mass section to the hydrophilic binder resin 100 mass section as an amount of the cross linking agent in this invention the endurance of the bridge formation object, water resistance, greasing prevention, and in order to wear and to optimize ink nature. Furthermore, it is 10 - 40 mass section preferably. The

hydrophilic binder polymer of this invention may make the following single organic-functions monomer and polyfunctional monomer use together. Specifically An N and N'-methylene screw acrylamide, acryloyl morpholine (meta), Vinylpyridine, N-methyl (meta) acrylamide, N, and N-dimethyl (meta) acrylamide, N and N-dimethylamino propyl (meta) acrylamide, N, and N-dimethylaminoethyl (meta) acrylate, N and N-diethylaminoethyl (meta) acrylate, N, and N-dimethylamino neopentyl (meta) acrylate, An N-vinyl-2-pyrrolidone, diacetone acrylamide, N-MECHIRORU (meta) acrylamide, A Pallas CHIREN sulfonic acid, its salt, methoxy triethylene-glycol (meta) acrylate, Methoxy tetraethylene-glycol (meta) acrylate, methoxy polyethylene-glycol (meta) acrylate (number average molecular weight 400 of PEG), Methoxy polyethylene-glycol (meta) acrylate (number average molecular weight 1000 of PEG), Butoxy ethyl (meta) acrylate, phenoxy ethyl (meta) acrylate, Phenoxy diethylene-glycol (meta) acrylate, phenoxy polyethylene-glycol (meta) acrylate, Nonylphenoxyethyl (meta) acrylate, dimethylol tricyclo DEKANJI (meta) acrylate, Polyethylene GURIKORUJI (meta) acrylate (number average molecular weight 400 of PEG), Polyethylene GURIKORUJI (meta) acrylate (number average molecular weight 600 of PEG), Polyethylene GURIKORUJI (meta) acrylate (number average molecular weight 1000 of PEG), Polypropylene GURIKORUJI (meta) acrylate (PPG number average molecular weight 400), 2 and 2-screw [4-(meta-chestnut ROKISHI ethoxy) phenyl] propane, 2 and 2-screw [4-(methacryloxydiethoxy) phenyl] propane, 2 and 2-screw [4-(meta-chestnut ROKISHI poly ethoxy) phenyl] propane or its acrylate object, beta-(meta) acryloyloxyethyl hydrogen phthalate, beta-(meth)acryloyloxy ECHIHADOROJIEN succinate, polyethylene, or polypropylene-glycol monochrome (meta) acrylate, 3-chloro-2-hydroxypropyl (meta) acrylate, 1, 3-butylene GURIKORUJI (meta) acrylate, 1, 6-hexane JIORUJI (meta) acrylate, neopentyl GURIKORUJI (meta) acrylate, TORIMECHI roll pro pantry (meta) acrylate, TETORAMECHIRORUMETANTORI (meta) acrylate, Tetramethylolmethane tetrapod (meta) acrylate, isobornyl (meta) acrylate, Lauryl (meta) acrylate, tridecyl (meta) acrylate, Stearyl (meta) acrylate, isodecyl (meta) acrylate, Cyclohexyl (meta) acrylate, tetrafurfuryl (meta) acrylate, Benzyl (meta) acrylate, monochrome (2-acryloyloxyethyl) acid phosphate, or its methacrylic object, Glycerol monochrome or di(meth)acrylate, tris (2-acryloxy ethyl) isocyanurate, or its methacrylic object, There are N-phenyl maleimide, N-(meta) acrylic malic acid imide, N-vinylcarbazole, a divinyl ethylene urea, a divinyl propylene urea, etc. It is desirable to carry out to aromatic secondary amine, the 3rd class alcohols, amides, phenols, lactams, the heterocyclic compound that has active hydrogen, and oximes as a protective group of the blocking isocyanate of this invention in consideration of things, such as rationalization of the dissociation temperature (100-200 degrees C) and aqueous-izing. Moreover, as an isocyanate, well-known things, such as hexane diisocyanate, toluene diisocyanate, MDI, and IPDI, can be used conventionally. In a thing lower than 100 degrees C, although the dissociation temperature of the blocking isocyanate to be used is quite low or needs to set up the bridge formation temperature of 3-dimensional bridge formation of hydrophilic binder polymer for a short time, it does not produce remarkable-on manufacture restrictions (selection of a proper cross linking agent, membranous waterproof design) and have it. [desirable] Moreover, if higher than 200 degrees C, hydrophobing of the Records Department which maceration sufficient by the heating value at the time of record for a version can progress and satisfy will not be attained. Therefore, the dissociation temperature of the block isocyanate used by this invention is 100-200 degrees C, and is a 130-180-degree C thing more preferably. Moreover, for a blocking isocyanate, it is ** ** that the size of 0.3 micrometers or less distributes in hydrophilic binder polymer. It is easy to produce concentration spots and is not desirable, when larger [than 0.3 micrometers] and it considers as the CPT version, and distribution of a blocking isocyanate is too uneven and writes in a picture. The check of distributed particle size observed the film front face with the optical microscope (good at about 500 times), and checked it by carrying out image analysis of the observation image. A block isocyanate / rate of a hydrophilic binder polymer mass ratio is used the amount of the block isocyanate of this invention in 1 / 20 - 10/1, and a further is used in 1 / 15 - 5/1 from a viewpoint of sensitivity and ****-proof. In this invention, since a recording method is what is depended on laser printing, optical-thermal-conversion matter which has an absorption band is further used for the luminescence wavelength field of the laser to be used. As this matter, for example The Matsuoka **** "JOEM Handbook 2 Absorption Spectra of

Dyes for Diode Lasers" ** exudation version (1990), The poly methine system coloring matter indicated by 2.3 CMC editorial department "functionality coloring matter of the 90s development-, and commercial-scene trend" CMC (1990) of Chapter 2 (cyanine dye), There are colors, such as phthalocyanine system coloring matter, dithiol metallic complex system coloring matter, a naphthoquinone, anthraquinone system coloring matter, triphenylmethane-color system coloring matter, aminium, gene MONIUMU system coloring matter, an azo system disperse dye, India aniline metal complex coloring matter, and between [molecules] type CT coloring matter, a pigment, and coloring matter. Specifically N-[4-[5-(4-dimethylamino-2-methylphenyl)-2 and 4-PENTA dienylidene]-3-methyl-2 and 5-cyclohexadiene-1-ylidene]-N and N-dimethylannmonium acetate, N-[4-[5-(4-dimethylamino phenyl)-3-phenyl-2-pentene-4-in-1-ylidene]-2 and 5-cyclohexadiene-1-ylidene]-N and N-dimethylannmonium Par chlorate, N and N-screw (4-dibutylamino phenyl)-N-[4-[N and N-screw (4-dibutylamino phenyl) AMINO] phenyl]-aminium Hexafluoroantimonate, 5-amino -2, 3-dicyano-8-(4-ethoxy phenylamino)-1, 4-naphthoquinone, N'-cyano-N-(4-diethylamino-2-methylphenyl)-1, 4-naphthoquinone diimine, 4, the 11-diamino-2-(3-methoxy butyl)-1-oxo-3-thioxo [3 and 4-pyrrolo b] anthracene -5, 10-dione, 5, 16(5H, 16H)-diaza-2-butylamino -10, 11-dithia [2 and 3-a:2'3'-JINAFUTO c]-naphthalene -1, 4-dione, Screw (dichlorobenzene -1, 2-dithiol) nickel (2:1) tetrabutyl ammonium, tetrapod chloro phthalocyanine Aluminum chloride, a polyvinyl carbazole -2, 3-dicyano-5-nitroglycerine -1, 4-naphthoquinone complex, etc. can be illustrated. Since it will be easy to perform the ** version if the well-known sensible-heat coloring matter which only the printing section colors is used together with a blocking isocyanate and visualization of the printing section is measured, it is desirable. For example, there are 3-diethylamino-6-methyl-7-anilinofluoran, a leuco color called bisphenol A, pulverized combination of a developer. The sensible-heat coloring matter currently indicated by ****, such as editing "coloring matter handbook" ***** (1986) besides big river HARASHIN, can be used. You may add the hydrophilic binder polymer and the blocking isocyanate which are used for the purpose of hydrophilic adjustment, and the non-reactivity hydrophilic-property polymer which does not react in a hydrophilic layer in the range which does not spoil ****-proof. The base material used for this invention takes into consideration the performance and cost which are required of a printing field, and should just choose them from a well-known material. When using with the printing machine with which the wearing method to a version drum is done according to the metal base material when a high dimensional accuracy called multicolored printing is required, metal base materials, such as aluminum and a product made from steel, are desirable. When process printing is not carried out but ****-proof [quantity] is required, paper, a synthetic paper, a waterproofing resin lamination, or a coat paper base material can be used for plastics base materials, such as polyester, and the field as which a low cost is required further. You may use what performed own surface treatment of a base material for adhesive improvement with the material in contact with a base material. As an example of this surface treatment, in the case of an aluminum sheet, various polishing processings and anodizing occur, and when it is a sheet plastic, there are corona discharge processing, blast processing, etc. An adhesives layer can be prepared on a base material if needed [, such as print durability,]. It prepares an adhesives layer, when you generally need ****-proof [quantity]. It is necessary to set adhesives by the hydrophilic layer component and the base material to be used, and to choose and design them. Adhesives, such as acrylic of a publication, an urethane system, a cellulose system, and an epoxy system, can be used for the Yamada ***** "encyclopedia of adhesion and adhesion" ***** (1986), ***** (1980) edited "an adhesion handbook" by the Japanese adhesion association, etc. The sensible-heat lithography original edition of this invention can be manufactured by the following methods. The application liquid (dope) which a paint shaker, a ball mill, an ultrasonic homogenizer, etc. are sufficient as, distributed, and was obtained with the solvent which chose the above-mentioned component according to the bridge formation method of the kind and hydrophilic binder polymer is applied on a base material by the doctor blade method, the bar coat method, the roll coat method, etc., it dries, and sensible-heat lithography material is obtained. If it is the storage stability top need when using the component containing an ethylene addition polymerization nature unsaturation machine, you may add the above-mentioned well-known thermostabilizer in 0.01 - 5% of range in a dope. Alcohols as a dope

solvent, such as water, ethanol, an isopropanol, and n-butanol, Ketones, such as an acetone and a methyl ethyl ketone, diethylene-glycol diethylether, A diisopropyl ether, a dioxane, a tetrahydro furan, ether called a diethylene glycol, Aliphatic hydrocarbon, such as aromatic hydrocarbons, such as ethyl acetate, ester called butyl acetate, toluene, and a xylene, n-hexane, and a decalin, a dimethyl formamide, a dimethyl sulfoxide, acetonitriles, or these partially aromatic solvents can be used. In order to carry out three-dimensions bridge formation of the hydrophilic binder polymer, an addition is heated at low temperature from the temperature which a blocking isocyanate dissociates. What is necessary is just to set up the thickness of a paint film arbitrarily among several micrometers - 100 micrometers. Usually, the thickness of 1-10 micrometers is desirable from the relation between a performance and cost. What is necessary is just to perform calender processing after an application / dryness, or the three-dimensions bridge formation-ized reaction of hydrophilic binder polymer, if it is necessary to raise surface smooth nature. If advanced smooth nature is required, it is desirable to carry out after an application / dryness especially. In order to engrave the sensible-heat direct lithography original edition of this invention, the document and picture created and edited with an electronic typesetting machine, DTP, the word processor, the personal computer, etc. are drawn and printed by laser, and only by subsequently irradiating an activity beam of light, no development process is performed but is completed. After performing the usual etching processing if required in case the offset press is equipped and it prints, it can print as it is.

[Example] Hereafter, although an example explains this invention concretely, this invention is not limited to this at all. In addition, among a sentence, as long as there is no notice especially, it is the mass section which is described as the section.

(1) The example 1 of manufacture of hydrophilic binder polymer [P-1]

200g of water was taught to the separable flask of 500ml size, and the temperature up was carried out to 80 degrees C under nitrogen atmosphere. Subsequently, the mixed solution 1 (feed was carried out over 2 hours into the separable flask, agitating 2-hydroxyethyl acrylate 6.85g, acrylamide 25.16g, g [of water / 50], and a mixed solution 2 (g [of potassium persulfate / 0.25], 50g of water).) The polymerization was continued at this temperature after that for 2 hours, and hydrophilic binder polymer P-1 (number average molecular weight by GPC : 1.5x104, the underwater oil droplet method contact angle of a water-kerosine system : 160 degrees or more) was obtained.

On the polyethylene-terephthalate base material with an example 1 thickness of 180 micrometers, the dope of the following composition which was beforehand distributed with for [bottom of room temperature / sufficient] 30 minutes with the paint shaker and which carried out after degassing was applied by the blade coating machine.

Hydrophilic binder polymer ;P -1 : 85.

section [zero /] Cymel 385 (product made from Mitsui SAITEKKU) 5.

section [zero /] NK5078 (coloring matter made from a Japanese photosensitive dye) 5.

section [zero /] dodecylbenzenesulfonic acid 1.

section [zero /] blocking isocyanate 10.

Section [Zero /] Tradename BAIHI Joule B5140 (Dissociation Temperature of 150 Degrees C, Protective-Group Oxime)

(Product made from Sumitomo Beyer Urethane)

Subsequently, in the vacuum dryer, it was air-dry for 30 minutes, and it dried for 20 minutes, and it filmized and 120 degrees C of lithography original editions were obtained. The domain size by the blocking isocyanate was smaller than 0.3 micrometers. Heat printing of the printing picture was carried out by the printer of 500mW semiconductor laser element loading which connected this original edition with the electronic typesetting machine. The dampening water which trimmed this version in the predetermined size and equipped the offset press (the HAMADA PRINTING PRESS CO., LTD. make, HAMADA611XL, hard blanket use) with and which was printed to paper of fine quality (the used ink is commercial offset ink (black, Dainippon Ink make)) used what diluted the etching solution 50 times with water. Even if it passes over the 20,000 sections, there is no greasing, and the picture section has also been printed vividly.

In example 2 example 1, except having changed the blocking isocyanate into Sumi Joule TPLS2078 (dissociation temperature; degrees C [160], protective-group; a lactam, the product made from Sumitomo Beyer Urethane), it was operated like the example 1, the lithography original edition was obtained (smaller [domain size] than 0.3 micrometers), and platemaking and printing were performed. It printed like the example 1 after printing. As a result of printing, it was coloring black and the ** version was easy for the picture section of the printing version. As a result of printing, there is neither 30,000 section past ** nor a greasing, and beautiful printed matter was obtained.

In example 3 example 1, except having made the amount of a blocking isocyanate into the five sections, it was operated like the example 1, the lithography original edition was obtained (smaller [domain size] than 0.3 micrometers), and platemaking and printing were performed. It printed like the example 1 after printing. As a result of printing, it was coloring black and the ** version was easy for the picture section of the printing version. As a result of printing, there is neither 30,000 section past ** nor a greasing, and the beautiful printing section was able to be obtained.

In example of comparison 1 example 1, except having not used a blocking isocyanate, it was operated like the example 1, the lithography original edition was obtained, and platemaking and printing were performed. It printed like the example 1 after printing. As a result of printing, the picture section of the printing version was gray (printing low density), and was what does not bear use at all.

In example of comparison 2 example 1, the blocking isocyanate was operated like the example 1 except **** for 50 sections, the lithography original edition was obtained, and platemaking and printing were performed. It printed like the example 1 after printing. As a result of printing, although the picture section of the printing version became black, it was that to which a greasing does not bear all HIDOKU *****.

[Effect of the Invention] Since the non-picture section is formed by hydrophilic binder polymer in this invention, development becomes unnecessary at a platemaking process, and since work, such as management of a developer and proper processing of waste fluid, is not needed, working efficiency and cost reduction are measured. It compares for [for which platemaking equipment naturally also needs development] plates, and equipment size becomes compact, and although required, since a mechanism becomes simple, precision can also design an equipment price low. furthermore, three-dimensions bridge formation is carried out, since intensity will become quite strong, as compared with the existing CPT version, in ****-proof, a picture and the non-picture section are boiled markedly, is excellent, and it became a ***** thing to practical use also as a plate for full-scale printings, such as not only the inplant printing centering on mere in-house printing but newspaper rotation printing, form printing, etc.

[Translation done.]